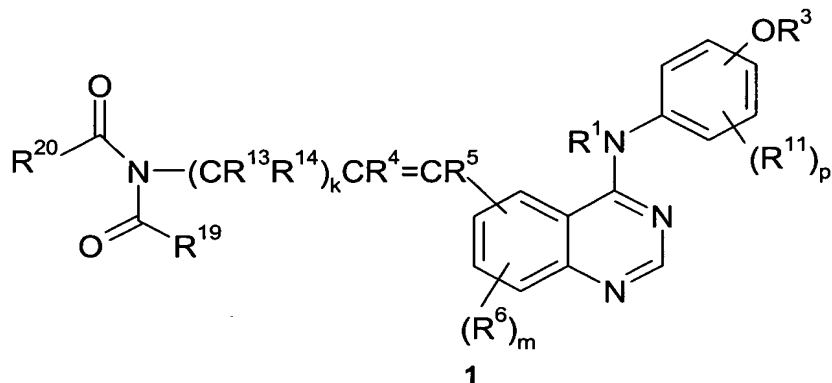


**IN THE CLAIMS:**

Please amend claims 1 and 19 without prejudice, as follows:

1. (Currently Amended) A method for preparing a compound of formula 1



acceptable salts, and solvates thereof, wherein:

k is an integer from 1 to 3;

m is an integer from 0 to 3;

p is an integer from 0 to 4;

R<sup>1</sup>, R<sup>2</sup>, R<sup>4</sup>, and R<sup>5</sup> are each independently selected from H and C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sup>3</sup> is -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(4 to 10 membered heterocyclic), wherein t is an integer from 0 to 5, said heterocyclic group is optionally fused to a benzene ring or a C<sub>5</sub>-C<sub>8</sub> cycloalkyl group, the -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>- moiety of the foregoing R<sup>3</sup> group optionally includes a carbon-carbon double or triple bond when t is an integer between 2 and 5, and the foregoing R<sup>3</sup> group, including any optional fused ring referred to above, is optionally substituted by 1 to 5 R<sup>10</sup> groups;

each R<sup>6</sup> is independently selected from halo, hydroxy, -NR<sup>1</sup>R<sup>2</sup>, C<sub>1</sub>-C<sub>6</sub> alkyl, trifluoromethyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, trifluoromethoxy, -NR<sup>7</sup>C(O)R<sup>1</sup>, -C(O)NR<sup>7</sup>R<sup>9</sup>, -SO<sub>2</sub>NR<sup>7</sup>R<sup>9</sup>, -NR<sup>7</sup>C(O)NR<sup>9</sup>R<sup>1</sup>, and -NR<sup>7</sup>C(O)OR<sup>9</sup>;

each R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> is independently selected from H, C<sub>1</sub>-C<sub>6</sub> alkyl, -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), and -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(4 to 10 membered heterocyclic), wherein t is an integer from 0 to 5, 1 or 2 ring carbon atoms of the heterocyclic group are optionally substituted with an oxo (=O) moiety, the alkyl, aryl and heterocyclic moieties of the foregoing R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> groups are optionally substituted with 1 to 3 substituents independently selected from halo, cyano, nitro, -NR<sup>1</sup>R<sup>2</sup>, trifluoromethyl, trifluoromethoxy, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, hydroxy, and C<sub>1</sub>-C<sub>6</sub> alkoxy;

or each R<sup>7</sup> and R<sup>9</sup>, or R<sup>8</sup> and R<sup>9</sup>, when attached to the same a nitrogen atom, can be taken together to form a 4 to 10 membered heterocyclic ring which may include 1 to 3 additional hetero moieties, in addition to the nitrogen to which said R<sup>7</sup>, R<sup>8</sup>, and R<sup>9</sup> are attached, selected from N, N(R<sup>1</sup>), O, and S, provided two O atoms, two S atoms or an O and S atom are not attached directly to each other;

each R<sup>10</sup> is independently selected from oxo (=O), halo, cyano, nitro, trifluoromethoxy, trifluoromethyl, azido, hydroxy, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, -C(O)R<sup>7</sup>,

$-\text{C}(\text{O})\text{OR}^7$ ,  $-\text{OC}(\text{O})\text{R}^7$ ,  $-\text{NR}^7\text{C}(\text{O})\text{R}^9$ ,  $-\text{NR}^7\text{SO}_2\text{NR}^9\text{R}^1$ ,  $-\text{NR}^7\text{C}(\text{O})\text{NR}^1\text{R}^9$ ,  $-\text{NR}^7\text{C}(\text{O})\text{OR}^9$ ,  $-\text{C}(\text{O})\text{NR}^7\text{R}^9$ ,  $-\text{NR}^7\text{R}^9$ ,  $-\text{NR}^7\text{OR}^9$ ,  $-\text{SO}_2\text{NR}^7\text{R}^9$ ,  $-\text{S}(\text{O})_j(\text{C}_1\text{-C}_6 \text{ alkyl})$  wherein  $j$  is an integer from 0 to 2,  $-(\text{CR}^1\text{R}^2)_t(\text{C}_6\text{-C}_{10} \text{ aryl})$ ,  $-(\text{CR}^1\text{R}^2)_t(4 \text{ to } 10 \text{ membered heterocyclic})$ ,  $-(\text{CR}^1\text{R}^2)_q\text{C}(\text{O})(\text{CR}^1\text{R}^2)_t(\text{C}_6\text{-C}_{10} \text{ aryl})$ ,  $-(\text{CR}^1\text{R}^2)_q\text{C}(\text{O})(\text{CR}^1\text{R}^2)_t(4 \text{ to } 10 \text{ membered heterocyclic})$ ,  $-(\text{CR}^1\text{R}^2)_t\text{O}(\text{CR}^1\text{R}^2)_q(\text{C}_6\text{-C}_{10} \text{ aryl})$ ,  $-(\text{CR}^1\text{R}^2)_t\text{O}(\text{CR}^1\text{R}^2)_q(4 \text{ to } 10 \text{ membered heterocyclic})$ ,  $-(\text{CR}^1\text{R}^2)_q\text{S}(\text{O})_j(\text{CR}^1\text{R}^2)_t(\text{C}_6\text{-C}_{10} \text{ aryl})$ , and  $-(\text{CR}^1\text{R}^2)_q\text{S}(\text{O})_j(\text{CR}^1\text{R}^2)_t(4 \text{ to } 10 \text{ membered heterocyclic})$ , wherein  $j$  is an integer from 0 to 2,  $q$  and  $t$  are each independently an integer from 0 to 5, 1 or 2 ring carbon atoms of the heterocyclic moieties of the foregoing  $\text{R}^{10}$  groups are optionally substituted with an oxo ( $=\text{O}$ ) moiety, and the alkyl, alkenyl, alkynyl, aryl and heterocyclic moieties of the foregoing  $\text{R}^{10}$  groups are optionally substituted with 1 to 3 substituents independently selected from halo, cyano, nitro, trifluoromethyl, trifluoromethoxy, azido,  $-\text{OR}^7$ ,  $-\text{C}(\text{O})\text{R}^7$ ,  $-\text{C}(\text{O})\text{OR}^7$ ,  $-\text{OC}(\text{O})\text{R}^7$ ,  $-\text{NR}^7\text{C}(\text{O})\text{R}^9$ ,  $-\text{C}(\text{O})\text{NR}^7\text{R}^9$ ,  $-\text{NR}^7\text{R}^9$ ,  $-\text{NR}^7\text{OR}^9$ ,  $\text{C}_1\text{-C}_6$  alkyl,  $\text{C}_2\text{-C}_6$  alkenyl,  $\text{C}_2\text{-C}_6$  alkynyl,  $-(\text{CR}^1\text{R}^2)_t(\text{C}_6\text{-C}_{10} \text{ aryl})$ , and  $-(\text{CR}^1\text{R}^2)_t(4 \text{ to } 10 \text{ membered heterocyclic})$ , wherein  $t$  is an integer from 0 to 5;

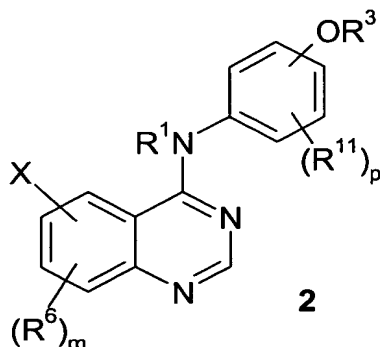
each  $\text{R}^{11}$  is independently selected from halo, cyano, nitro, trifluoromethoxy, trifluoromethyl, azido, hydroxy,  $\text{C}_1\text{-C}_6$  alkoxy,  $\text{C}_1\text{-C}_{10}$  alkyl,  $\text{C}_2\text{-C}_6$  alkenyl,  $\text{C}_2\text{-C}_6$  alkynyl,  $-\text{C}(\text{O})\text{R}^7$ ,  $-\text{C}(\text{O})\text{OR}^7$ ,  $-\text{OC}(\text{O})\text{R}^7$ ,  $-\text{NR}^7\text{C}(\text{O})\text{R}^9$ ,  $-\text{NR}^7\text{SO}_2\text{NR}^9\text{R}^1$ ,  $-\text{NR}^7\text{C}(\text{O})\text{NR}^1\text{R}^9$ ,  $-\text{NR}^7\text{C}(\text{O})\text{OR}^9$ ,  $-\text{C}(\text{O})\text{NR}^7\text{R}^9$ ,  $-\text{NR}^7\text{R}^9$ ,  $-\text{NR}^7\text{OR}^9$ ,  $-\text{SO}_2\text{NR}^7\text{R}^9$ ,  $-\text{S}(\text{O})_j(\text{C}_1\text{-C}_6 \text{ alkyl})$  wherein  $j$  is an integer from 0 to 2,  $-(\text{CR}^1\text{R}^2)_t(\text{C}_6\text{-C}_{10} \text{ aryl})$ ,  $-(\text{CR}^1\text{R}^2)_t(4 \text{ to } 10 \text{ membered heterocyclic})$ ,  $-(\text{CR}^1\text{R}^2)_q\text{C}(\text{O})(\text{CR}^1\text{R}^2)_t(\text{C}_6\text{-C}_{10} \text{ aryl})$ ,  $-(\text{CR}^1\text{R}^2)_q\text{C}(\text{O})(\text{CR}^1\text{R}^2)_t(4 \text{ to } 10 \text{ membered heterocyclic})$ ,  $-(\text{CR}^1\text{R}^2)_t\text{O}(\text{CR}^1\text{R}^2)_q(\text{C}_6\text{-C}_{10} \text{ aryl})$ ,  $-(\text{CR}^1\text{R}^2)_t\text{O}(\text{CR}^1\text{R}^2)_q(4 \text{ to } 10 \text{ membered heterocyclic})$ ,  $-(\text{CR}^1\text{R}^2)_q\text{S}(\text{O})_j(\text{CR}^1\text{R}^2)_t(\text{C}_6\text{-C}_{10} \text{ aryl})$ , and  $-(\text{CR}^1\text{R}^2)_q\text{S}(\text{O})_j(\text{CR}^1\text{R}^2)_t(4 \text{ to } 10 \text{ membered heterocyclic})$ , wherein  $j$  is an integer from 0 to 2,  $q$  and  $t$  are each independently an integer from 0 to 5, 1 or 2 ring carbon atoms of the heterocyclic moieties of the foregoing  $\text{R}^{10}$  groups are optionally substituted with an oxo ( $=\text{O}$ ) moiety, and the alkyl, alkenyl, alkynyl, aryl and heterocyclic moieties of the foregoing  $\text{R}^{10}$  groups are optionally substituted with 1 to 3 substituents independently selected from halo, cyano, nitro, trifluoromethyl, trifluoromethoxy, azido,  $-\text{OR}^7$ ,  $-\text{C}(\text{O})\text{R}^7$ ,  $-\text{C}(\text{O})\text{OR}^7$ ,  $-\text{OC}(\text{O})\text{R}^7$ ,  $-\text{NR}^7\text{C}(\text{O})\text{R}^9$ ,  $-\text{C}(\text{O})\text{NR}^7\text{R}^9$ ,  $-\text{NR}^7\text{R}^9$ ,  $-\text{NR}^7\text{OR}^9$ ,  $\text{C}_1\text{-C}_6$  alkyl,  $\text{C}_2\text{-C}_6$  alkenyl,  $\text{C}_2\text{-C}_6$  alkynyl,  $-(\text{CR}^1\text{R}^2)_t(\text{C}_6\text{-C}_{10} \text{ aryl})$ , and  $-(\text{CR}^1\text{R}^2)_t(4 \text{ to } 10 \text{ membered heterocyclic})$ , wherein  $t$  is an integer from 0 to 5;

each  $\text{R}^{13}$  and  $\text{R}^{14}$  are independently selected from H,  $\text{C}_1\text{-C}_6$  alkyl, and  $-\text{CH}_2\text{OH}$ ;

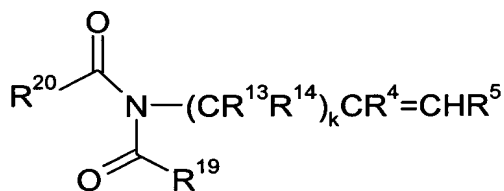
$\text{R}^{19}$  and  $\text{R}^{20}$  are independently selected from the group consisting of  $-(\text{CR}^{15}\text{R}^{16})_l\text{OR}^{17}$  and  $\text{OR}^{18}$  wherein each  $\text{R}^{15}$  and  $\text{R}^{16}$  is independently selected from H,  $\text{C}_1\text{-C}_6$  alkyl, and  $-\text{CH}_2\text{OH}$ ,  $l$  is an integer from 1 to 3,  $\text{R}^{17}$  is  $\text{C}_1\text{-C}_6$  alkyl,  $\text{R}^{18}$  independently is  $\text{C}_1\text{-C}_6$  alkyl, provided both  $\text{R}^{19}$  and  $\text{R}^{20}$  are not simultaneously  $-(\text{CR}^{15}\text{R}^{16})_l\text{OR}^{17}$ ;

wherein each carbon not bound to a N or O atom, or to  $\text{S}(\text{O})_j$ , wherein  $j$  is an integer from 0 to 2, is optionally substituted with  $\text{R}^{12}$ , wherein  $\text{R}^{12}$  is  $\text{R}^7$ ,  $-\text{OR}^7$ ,  $-\text{OC}(\text{O})\text{R}^7$ ,  $-\text{OC}(\text{O})\text{NR}^7\text{R}^9$ ,  $-\text{OCO}_2\text{R}^7$ ,  $-\text{S}(\text{O})_j\text{R}^7$ ,  $-\text{S}(\text{O})_j\text{NR}^7\text{R}^9$ ,  $-\text{NR}^7\text{R}^9$ ,  $-\text{NR}^7\text{C}(\text{O})\text{R}^9$ ,  $-\text{NR}^7\text{SO}_2\text{R}^9$ ,  $-\text{NR}^7\text{C}(\text{O})\text{NR}^8\text{R}^9$ ,  $-\text{NR}^7\text{SO}_2\text{NR}^8\text{R}^9$ ,  $-\text{NR}^7\text{CO}_2\text{R}^9$ , CN,  $-\text{C}(\text{O})\text{R}^7$ , or halo, wherein  $j$  is an integer from 0 to 2; and wherein any of the above-mentioned substituents comprising a  $\text{CH}_3$  (methyl),  $\text{CH}_2$  (methylene), or CH (methine) group, which is not attached to a halogen, SO or  $\text{SO}_2$  group or to a N, O or S

atom, is optionally substituted with a group selected from hydroxy, halo, C<sub>1</sub>-C<sub>4</sub> alkyl, C<sub>1</sub>-C<sub>4</sub> alkoxy and -NR<sup>1</sup>R<sup>2</sup>; which comprises reacting a compound of formula 2

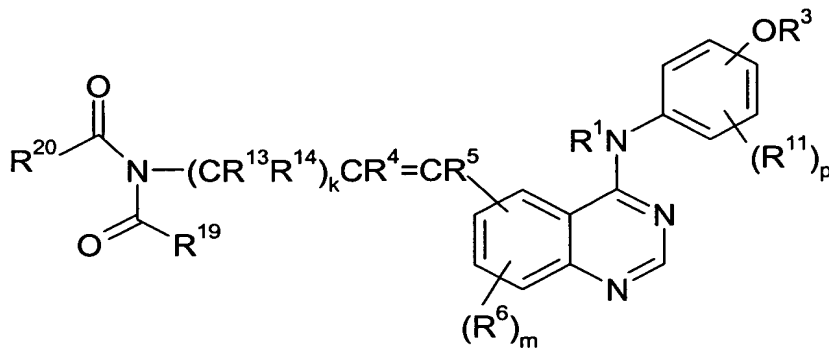


wherein X is a halide and R<sup>1</sup>, R<sup>3</sup>, R<sup>6</sup>, R<sup>11</sup>, m and p are as defined for formula 1 above, with a compound of formula 3



wherein R<sup>4</sup>, R<sup>5</sup>, R<sup>13</sup>, R<sup>14</sup>, R<sup>19</sup>, R<sup>20</sup>, and k are as defined for formula 1 above, in the presence of a catalyst, a base, and an optional ligand.

2. (Withdrawn) A method for preparing a compound of formula 1



pharmaceutically acceptable salts, solvates and prodrugs thereof, wherein:

m is an integer from 0 to 3;

p is an integer from 0 to 4;

each R<sup>1</sup>, R<sup>2</sup>, R<sup>4</sup>, and R<sup>5</sup> is independently selected from H and C<sub>1</sub>-C<sub>6</sub> alkyl;

R<sup>3</sup> is -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub> (4 to 10 membered heterocyclic), wherein t is an integer from 0 to 5, said heterocyclic group is optionally fused to a benzene ring or a C<sub>5</sub>-C<sub>8</sub> cycloalkyl group, the -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>- moiety of the foregoing R<sup>3</sup> group optionally includes a carbon-carbon double or triple

bond when t is an integer between 2 and 5, and the foregoing R<sup>3</sup> groups, including any optional fused rings referred to above, are optionally substituted by 1 to 5 R<sup>10</sup> groups;

each k and l independently is an integer from 1 to 3;

each R<sup>6</sup> is independently selected from halo, hydroxy, -NR<sup>1</sup>R<sup>2</sup>, C<sub>1</sub>-C<sub>6</sub> alkyl, trifluoromethyl, C<sub>1</sub>-C<sub>6</sub> alkoxy, trifluoromethoxy, -NR<sup>7</sup>C(O)R<sup>1</sup>, -C(O)NR<sup>7</sup>R<sup>9</sup>, -SO<sub>2</sub>NR<sup>7</sup>R<sup>9</sup>, -NR<sup>7</sup>C(O)NR<sup>9</sup>R<sup>1</sup>, and -NR<sup>7</sup>C(O)OR<sup>9</sup>;

each R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> is independently selected from H, C<sub>1</sub>-C<sub>6</sub> alkyl, -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), and -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(4 to 10 membered heterocyclic), wherein t is an integer from 0 to 5, 1 or 2 ring carbon atoms of the heterocyclic group are optionally substituted with an oxo (=O) moiety, the alkyl, aryl and heterocyclic moieties of the foregoing R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> groups are optionally substituted with 1 to 3 substituents independently selected from halo, cyano, nitro, -NR<sup>1</sup>R<sup>2</sup>, trifluoromethyl, trifluoromethoxy, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, hydroxy, and C<sub>1</sub>-C<sub>6</sub> alkoxy;

or R<sup>7</sup> and R<sup>9</sup>, or R<sup>8</sup> and R<sup>9</sup>, when attached to a nitrogen atom, can be taken together to form a 4 to 10 membered heterocyclic ring which may include 1 to 3 additional hetero moieties, in addition to the nitrogen to which said R<sup>7</sup>, R<sup>8</sup>, and R<sup>9</sup> are attached, selected from N, N(R<sup>1</sup>), O, and S, provided two O atoms, two S atoms or an O and S atom are not attached directly to each other;

each R<sup>10</sup> is independently selected from oxo (=O), halo, cyano, nitro, trifluoromethoxy, trifluoromethyl, azido, hydroxy, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, -C(O)R<sup>7</sup>, -C(O)OR<sup>7</sup>, -OC(O)R<sup>7</sup>, -NR<sup>7</sup>C(O)R<sup>9</sup>, -NR<sup>7</sup>SO<sub>2</sub>NR<sup>9</sup>R<sup>1</sup>, -NR<sup>7</sup>C(O)NR<sup>1</sup>R<sup>9</sup>, -NR<sup>7</sup>C(O)OR<sup>9</sup>, -C(O)NR<sup>7</sup>R<sup>9</sup>, -NR<sup>7</sup>R<sup>9</sup>, -NR<sup>7</sup>OR<sup>9</sup>, -SO<sub>2</sub>NR<sup>7</sup>R<sup>9</sup>, -S(O)<sub>j</sub>(C<sub>1</sub>-C<sub>6</sub> alkyl) wherein j is an integer from 0 to 2, -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(4 to 10 membered heterocyclic), -(CR<sup>1</sup>R<sup>2</sup>)<sub>q</sub>C(O)(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), -(CR<sup>1</sup>R<sup>2</sup>)<sub>q</sub>C(O)(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(4 to 10 membered heterocyclic), -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>O(CR<sup>1</sup>R<sup>2</sup>)<sub>q</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>O(CR<sup>1</sup>R<sup>2</sup>)<sub>q</sub>(4 to 10 membered heterocyclic), -(CR<sup>1</sup>R<sup>2</sup>)<sub>q</sub>S(O)<sub>j</sub>(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), and -(CR<sup>1</sup>R<sup>2</sup>)<sub>q</sub>S(O)<sub>j</sub>(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(4 to 10 membered heterocyclic), wherein j is an integer from 0 to 2, q and t are each independently an integer from 0 to 5, 1 or 2 ring carbon atoms of the heterocyclic moieties of the foregoing R<sup>10</sup> groups are optionally substituted with an oxo (=O) moiety, and the alkyl, alkenyl, alkynyl, aryl and heterocyclic moieties of the foregoing R<sup>10</sup> groups are optionally substituted with 1 to 3 substituents independently selected from halo, cyano, nitro, trifluoromethyl, trifluoromethoxy, azido, -OR<sup>7</sup>, -C(O)R<sup>7</sup>, -C(O)OR<sup>7</sup>, -OC(O)R<sup>7</sup>, -NR<sup>7</sup>C(O)R<sup>9</sup>, -C(O)NR<sup>7</sup>R<sup>9</sup>, -NR<sup>7</sup>R<sup>9</sup>, -NR<sup>7</sup>OR<sup>9</sup>, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), and -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(4 to 10 membered heterocyclic), wherein t is an integer from 0 to 5;

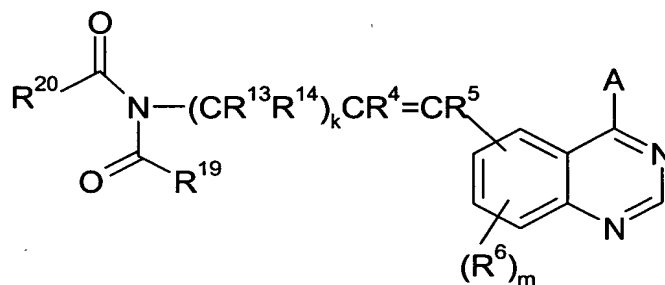
each R<sup>11</sup> is independently selected from halo, cyano, nitro, trifluoromethoxy, trifluoromethyl, azido, hydroxy, C<sub>1</sub>-C<sub>6</sub> alkoxy, C<sub>1</sub>-C<sub>10</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, -C(O)R<sup>7</sup>, -C(O)OR<sup>7</sup>, -OC(O)R<sup>7</sup>, -NR<sup>7</sup>C(O)R<sup>9</sup>, -NR<sup>7</sup>SO<sub>2</sub>NR<sup>9</sup>R<sup>1</sup>, -NR<sup>7</sup>C(O)NR<sup>1</sup>R<sup>9</sup>, -NR<sup>7</sup>C(O)OR<sup>9</sup>, -C(O)NR<sup>7</sup>R<sup>9</sup>, -NR<sup>7</sup>R<sup>9</sup>, -NR<sup>7</sup>OR<sup>9</sup>, -SO<sub>2</sub>NR<sup>7</sup>R<sup>9</sup>, -S(O)<sub>j</sub>(C<sub>1</sub>-C<sub>6</sub> alkyl) wherein j is an integer from 0 to 2, -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(4 to 10 membered heterocyclic), -(CR<sup>1</sup>R<sup>2</sup>)<sub>q</sub>C(O)(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), -(CR<sup>1</sup>R<sup>2</sup>)<sub>q</sub>C(O)(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(4 to 10 membered heterocyclic), -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>O(CR<sup>1</sup>R<sup>2</sup>)<sub>q</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>O(CR<sup>1</sup>R<sup>2</sup>)<sub>q</sub>(4 to 10 membered heterocyclic), -(CR<sup>1</sup>R<sup>2</sup>)<sub>q</sub>S(O)<sub>j</sub>(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), and -(CR<sup>1</sup>R<sup>2</sup>)<sub>q</sub>S(O)<sub>j</sub>(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(4 to 10 membered heterocyclic), wherein j is an integer from 0 to 2, q and t are each independently an integer from 0 to 5, 1 or 2 ring carbon atoms of the heterocyclic moieties of the foregoing R<sup>11</sup> groups are optionally substituted with an oxo (=O) moiety, and the alkyl, alkenyl, alkynyl, aryl and heterocyclic moieties of the foregoing R<sup>11</sup> groups are optionally substituted with 1 to 3 substituents independently selected from halo, cyano, nitro, trifluoromethyl, trifluoromethoxy, azido, -OR<sup>7</sup>, -C(O)R<sup>7</sup>, -C(O)OR<sup>7</sup>, -OC(O)R<sup>7</sup>, -NR<sup>7</sup>C(O)R<sup>9</sup>, -C(O)NR<sup>7</sup>R<sup>9</sup>, -NR<sup>7</sup>R<sup>9</sup>, -NR<sup>7</sup>OR<sup>9</sup>, C<sub>1</sub>-C<sub>6</sub> alkyl, C<sub>2</sub>-C<sub>6</sub> alkenyl, C<sub>2</sub>-C<sub>6</sub> alkynyl, -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(C<sub>6</sub>-C<sub>10</sub> aryl), and -(CR<sup>1</sup>R<sup>2</sup>)<sub>t</sub>(4 to 10 membered heterocyclic), wherein t is an integer from 0 to 5;

aryl),  $-(CR^1R^2)_qO(CR^1R^2)_q$  (4 to 10 membered heterocyclic),  $-(CR^1R^2)_qS(O)_j(CR^1R^2)_t$  ( $C_6$ - $C_{10}$  aryl), and  $-(CR^1R^2)_qS(O)_j(CR^1R^2)_t$  (4 to 10 membered heterocyclic), wherein  $j$  is an integer from 0 to 2,  $q$  and  $t$  are each independently an integer from 0 to 5, 1 or 2 ring carbon atoms of the heterocyclic moieties of the foregoing  $R^{10}$  groups are optionally substituted with an oxo ( $=O$ ) moiety, and the alkyl, alkenyl, alkynyl, aryl and heterocyclic moieties of the foregoing  $R^{10}$  groups are optionally substituted with 1 to 3 substituents independently selected from halo, cyano, nitro, trifluoromethyl, trifluoromethoxy, azido,  $-OR^7$ ,  $-C(O)R^7$ ,  $-C(O)OR^7$ ,  $-OC(O)R^7$ ,  $-NR^7C(O)R^9$ ,  $-C(O)NR^7R^9$ ,  $-NR^7R^9$ ,  $-NR^7OR^9$ ,  $C_1$ - $C_6$  alkyl,  $C_2$ - $C_6$  alkenyl,  $C_2$ - $C_6$  alkynyl,  $-(CR^1R^2)_t$  ( $C_6$ - $C_{10}$  aryl), and  $-(CR^1R^2)_t$  (4 to 10 membered heterocyclic), wherein  $t$  is an integer from 0 to 5;

each  $R^{13}$ ,  $R^{14}$ ,  $R^{15}$  and  $R^{16}$  is independently selected from H,  $C_1$ - $C_6$  alkyl, and  $-CH_2OH$ ;

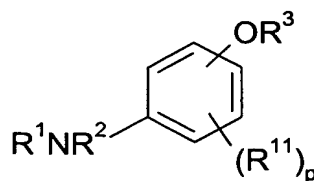
$R^{17}$  is  $C_1$ - $C_6$  alkyl;

wherein each carbon not bound to a N or O atom, or to  $S(O)_j$ , wherein  $j$  is an integer from 0 to 2, is optionally substituted with  $R^{12}$ , wherein  $R^{12}$  is  $R^7$ ,  $-OR^7$ ,  $-OC(O)R^7$ ,  $-OC(O)NR^7R^9$ ,  $-OCO_2R^7$ ,  $-S(O)_jR^7$ ,  $-S(O)_jNR^7R^9$ ,  $-NR^7R^9$ ,  $-NR^7C(O)R^9$ ,  $-NR^7SO_2R^9$ ,  $-NR^7C(O)NR^8R^9$ ,  $-NR^7SO_2NR^8R^9$ ,  $-NR^7CO_2R^9$ , CN,  $-C(O)R^7$ , or halo, wherein  $j$  is an integer from 0 to 2; and wherein any of the above-mentioned substituents comprising a  $CH_3$  (methyl),  $CH_2$  (methylene), or CH (methine) group, which is not attached to a halogen, SO or  $SO_2$  group or to a N, O or S atom, is optionally substituted with a group selected from hydroxy, halo,  $C_1$ - $C_4$  alkyl,  $C_1$ - $C_4$  alkoxy and  $-NR^1R^2$ ; which comprises reacting a compound of formula 7



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wherein A is Cl or F and  $R^4$ ,  $R^5$ ,  $R^6$ ,  $R^{13}$ ,  $R^{14}$ ,  $R^{19}$ ,  $R^{20}$ ,  $k$  and  $m$  are as defined for formula 1 with a compound of formula 8



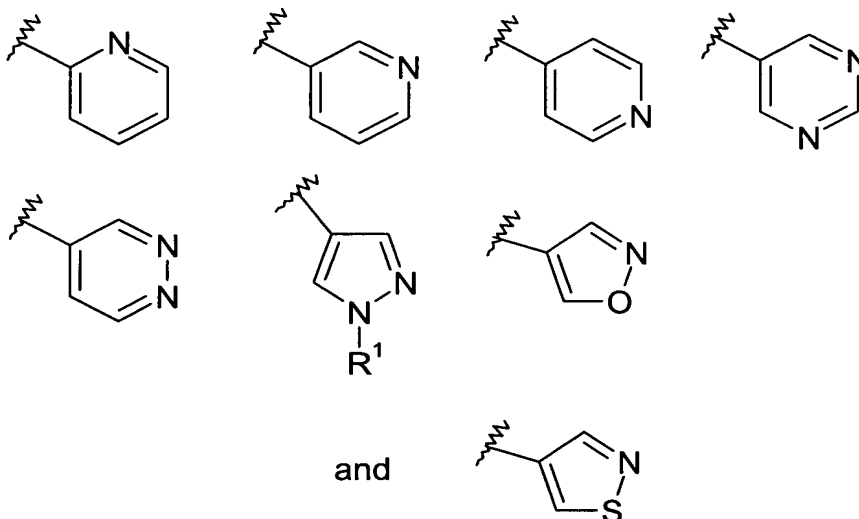
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wherein  $R^1$ ,  $R^2$ ,  $R^3$ ,  $R^{11}$  and  $p$  are as defined for formula 1.

3. (Original) The method according to claims 1 or 2, wherein  $R^3$  is  $-(CR^1R^2)_t$  (4 to 10 membered heterocyclic), wherein  $t$  is an integer from 0 to 5, and the foregoing  $R^3$  groups are optionally substituted by 1 to 3  $R^{10}$  groups.

4. (Original) The method according to claim 3, wherein said heterocyclic group is optionally fused to a benzene ring or a C<sub>5</sub>-C<sub>8</sub> cycloalkyl group, and the foregoing R<sup>3</sup> groups, including any optional fused rings, are optionally substituted by 1 to 3 R<sup>10</sup> groups.

5. (Original) The method according to claims 1 or 2, wherein R<sup>3</sup> is selected from



wherein the foregoing R<sup>3</sup> groups are optionally substituted by 1 to 3 R<sup>10</sup> groups.

6. (Original) The method according to claims 1 or 2, wherein R<sup>3</sup> is pyridin-3-yl optionally substituted by 1 to 3 R<sup>10</sup> groups.

7. (Original) The method according to claims 1 or 2, wherein R<sup>4</sup> and R<sup>5</sup> are both hydrogen.

8. (Original) The method according to claims 1 or 2, wherein R<sup>13</sup> and R<sup>14</sup> are both hydrogen.

9. (Original) The method according to claims 1 or 2, wherein R<sup>15</sup> and R<sup>16</sup> are both hydrogen.

10. (Original) The method according to claims 1 or 2, wherein k is 1.

11. (Original) The method according to claims 1 or 2, wherein l is 1.

12. (Original) The method according to claims 1 or 2, wherein R<sup>17</sup> is a t-butyl group.

13. (Original) The method according to claims 1 or 2, wherein R<sup>19</sup> and R<sup>20</sup> are both OR<sup>18</sup> wherein each R<sup>18</sup> independently is C<sub>1</sub>-C<sub>6</sub> alkyl.

14. (Original) The method according to claims 1 or 2, wherein R<sup>18</sup> is a t-butyl group.

15. (Original) The method according to claim 1, wherein R<sup>19</sup> is -(CR<sup>15</sup>R<sup>16</sup>)<sub>l</sub>OR<sup>17</sup> and R<sup>20</sup> is OR<sup>18</sup>.

16. (Original) The method according to claim 1, wherein X is a halide selected from the group consisting of chloride, bromide and iodide.

17. (Original) The method according to claim 1, wherein the catalyst is palladium or nickel catalyst selected from the group consisting of palladium on carbon (Pd/C), Pd(OAc)<sub>2</sub>, Pd<sub>2</sub>(dba)<sub>3</sub>, PdCl<sub>2</sub>, Pd(MeCN)<sub>2</sub>Cl<sub>2</sub>, Pd(PhCN)<sub>2</sub>Cl<sub>2</sub>, PdCl<sub>2</sub>(PPh<sub>3</sub>)<sub>2</sub>, Pd(PPh<sub>3</sub>)<sub>4</sub>, BnPdCl(PPh<sub>3</sub>)<sub>2</sub>,

$\text{Pd}(\text{Otfa})_2$ ,  $\text{Pd}(\text{PPh}_3)_2(\text{Otfa})_2$ ,  $\text{PdCl}_2(\text{dppf})$ ,  $\text{Pd}(\text{acac})_2$ ,  $\text{Pd}_2(\text{dba})_3\text{-CHCl}_3$ ,  $\text{Ni}(\text{PPh}_3)_4$ ,  $\text{Pd}(\text{dppb})$ ,  $\text{trans-di}(\square\text{-acetato})\text{-bis[o-(di-o-tolylphosphino)benzyl]dipalladium(II)}$ ,  $\text{bis(1,3-dihydro-1,3-dimethyl-2H-imidazol-2-ylidene)diiodo-palladium}$  and  $\text{diiido[methylenebis[3-(2-methyl)-1H-imidazol-1-yl-2(3H)-ylidene]]-palladium}$ .

18. (Original) The method according to claim 1, wherein said ligand is selected from the group consisting of a polymer bound phosphine, BINAP, dppf, 2-methyl-2'-(dicyclohexylphosphino)biphenyl, 2-dimethylamino-2'-(dicyclohexylphosphino)biphenyl, and  $\text{P(R}^{22}\text{)}_3$ , wherein each  $\text{R}^{22}$  is independently selected from the group consisting of 2-methyl-2'-(dicyclohexylphosphino)biphenyl, 2-dimethylamino-2'-(dicyclohexylphosphino)biphenyl, phenyl, o-tolyl, OMe, and furyl.

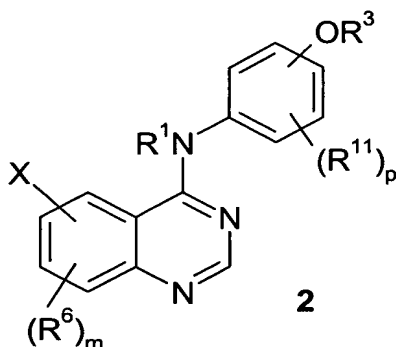
19. (Currently Amended) The method according to claim 1, ~~wherein the base is~~ wherein said base is selected from the group consisting of  $(\text{R})_3\text{N}$ ,  $(\text{R})_2\text{NH}$ ,  $\text{RNH}_2$ ,  $\text{QX}$ ,  $\text{Q}_2\text{CO}_3$ ,  $\text{Q}_3\text{PO}_4$ ,  $\text{QO}_2\text{CR}$ , wherein Q is selected from the group consisting of  $(\text{R})_4\text{N}^+$ , Na, K, Cs, Cu, Cd, and Ca, and wherein each R is independently selected from H,  $\text{C}_1\text{-C}_6$  alkyl,  $\text{-(CR}^1\text{R}^2\text{)}_t(\text{C}_6\text{-C}_{10}\text{ aryl)}$ , and  $\text{-(CR}^1\text{R}^2\text{)}_t(4\text{ to }10\text{ membered heterocyclic)}$ , wherein t is an integer from 0 to 5, 1 or 2 ring carbon atoms of the heterocyclic group are optionally substituted with an oxo (=O) moiety, the alkyl, aryl and heterocyclic moieties of the foregoing R groups are optionally substituted with 1 to 3 substituents independently selected from halo, cyano, nitro,  $\text{-NR}^1\text{R}^2$ , trifluoromethyl, trifluoromethoxy,  $\text{C}_1\text{-C}_6$  alkyl,  $\text{C}_2\text{-C}_6$  alkenyl,  $\text{C}_2\text{-C}_6$  alkynyl, and  $\text{C}_1\text{-C}_6$  alkoxy, and wherein  $\text{R}^1$  and  $\text{R}^2$  are independently selected from H and  $\text{C}_1\text{-C}_6$  alkyl.

20. (Original) The method according to claim 1, wherein said reaction is carried out in a solvent selected from the group consisting of toluene, benzene, xylene, dimethylformamide, dimethylacetamide, dioxane, tetrahydrofuran, acetonitrile, N-methylpyrrolidinone, dimethylsulfoxide, dimethoxyethane,  $\text{CH}_2\text{Cl}_2$ ,  $\text{CHCl}_3$ ,  $\text{ClCH}_2\text{CH}_2\text{Cl}$ ,  $\text{N(C}_1\text{-C}_6\text{ alkyl)}_3$ ,  $\text{N(benzyl)}_3$ ,  $\text{HO(C}_1\text{-C}_6\text{ alkyl)}$ , acetone, methylethylketone, methylbutylketone, and mixtures thereof.

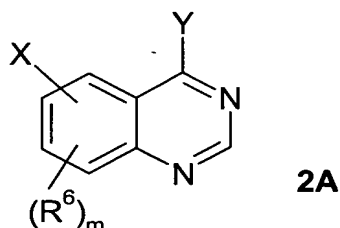
21. (Original) The method according to claim 20, wherein said  $\text{HO(C}_1\text{-C}_6\text{ alkyl)}$  is 2-propanol, 2-butanol, or a mixture thereof.

22. (Original) The method according to claim 1, wherein said reaction is carried out at a temperature ranging from about  $25^\circ\text{C}$  to about  $175^\circ\text{C}$ .

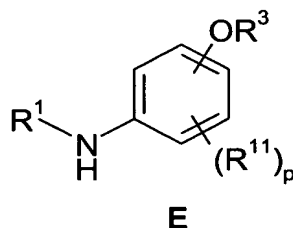
23. (Original) The method according to claim 1, wherein the compound of formula 2



is prepared by reacting a compound of formula 2A

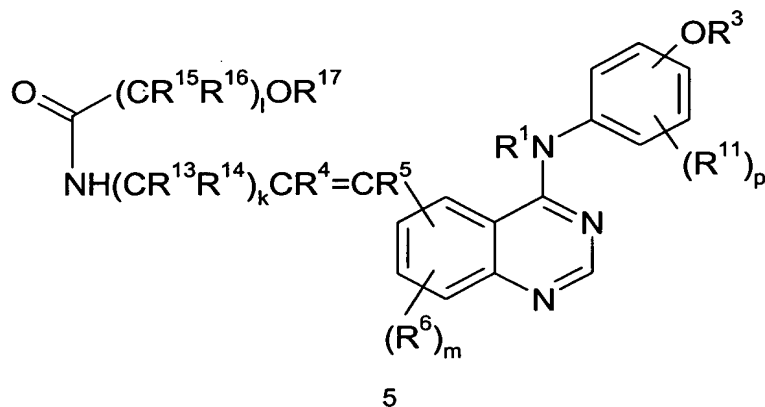


wherein Y is a halide and X, R<sup>6</sup> and m are as defined for formula 1, with a compound of formula E



wherein R<sup>1</sup>, R<sup>3</sup>, R<sup>11</sup>, and p are as defined for formula 1.

24. (Original) The method according to claim 1, further comprising converting the compound of formula 1 in one or more steps to produce a compound of formula 5



wherein R<sup>1</sup>, R<sup>3</sup>, R<sup>4</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>11</sup>, R<sup>13</sup>, R<sup>14</sup>, R<sup>15</sup>, R<sup>16</sup>, R<sup>17</sup>, k, l, m, and p are defined for formula 1 in claim 1.

25. (Original) The method according to claim 24, wherein the compound of formula 5 is selected from the group consisting of :

E-2-Methoxy-N-(3-{4-[3-methyl-4-(6-methyl-pyridin-3-yloxy)-phenylamino]-quinazolin-6-yl}-allyl)-acetamide;

E-N-(3-{4-[3-Chloro-4-(6-methyl-pyridin-3-yloxy)-phenylamino]-quinazolin-6-yl}-allyl)-2-methoxy-acetamide;

E-N-(3-{4-[3-Chloro-4-(6-methyl-pyridin-3-yloxy)-phenylamino]-quinazolin-6-yl}-allyl)-acetamide;

E-2-Ethoxy-N-(3-{4-[3-methyl-4-(6-methyl-pyridin-3-yloxy)-phenylamino]-quinazolin-6-yl}-allyl)-acetamide;

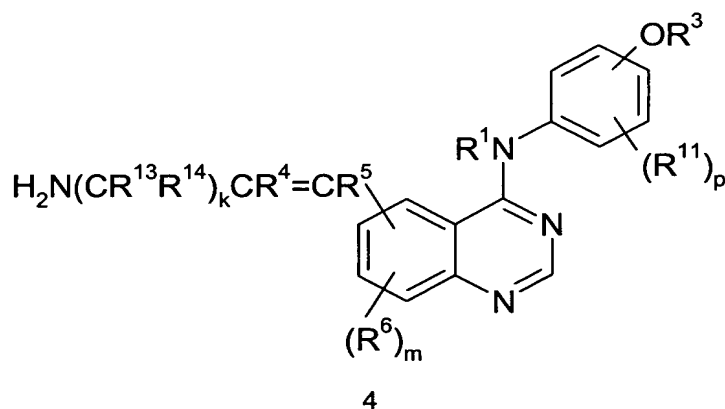


E-N-(3-{4-[3-Methyl-4-(6-methyl-pyridin-3-yloxy)-phenylamino]-quinazolin-6-yl}-allyl)-methanesulfonamide;

and the pharmaceutically acceptable salts, prodrugs and solvates of the foregoing compounds.

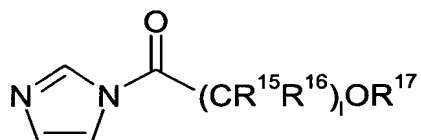
26. (Original) The method of claim 24 wherein converting the compound of formula 1 to the compound of formula 5 comprises the steps of :

(a) reacting the compound of formula 1 with an acid to form a compound of formula 4 or a salt thereof



and (b) reacting the compound of formula 4 or its salt with  $\text{ClC(O)(CR}^{15}\text{R}^{16})_l\text{OR}^{17}$  or a reactive equivalent thereof in the presence of a base to form the compound of formula 5.

27. (Original) The method according to claim 26, wherein in step (b), the reactive equivalent of  $\text{ClC(O)(CR}^{15}\text{R}^{16})_l\text{OR}^{17}$  is an acid imidazole represented by the formula

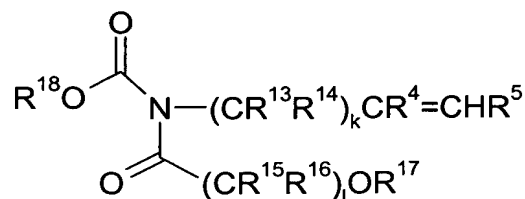


or an acid anhydride represented by the formula  $[\text{R}^{17}\text{O(CR}^{15}\text{R}^{16})_l\text{C(O)}]_2\text{O}$ .

28. (Original) The method according to claim 26, wherein in step (b), the base is at least one compound selected from the group consisting of an aqueous hydroxide of an alkali or alkaline earth metal, a carbonate, phosphate or hydrogen phosphate of an alkaline earth metal, an tertiary amine and DABCO.

29. (Original) The method according to claim 26, wherein step (b) comprises reacting the compound of formula 1 with an acid in one step to produce the compound of formula 5.

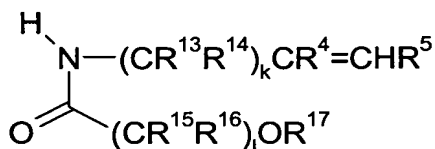
30. (Withdrawn) A method for preparing a compound represented by the formula 3a



3a

wherein  $\text{R}^4$  and  $\text{R}^5$  are independently selected from hydrogen and  $\text{C}_1\text{-C}_6$  alkyl; each  $\text{R}^{13}$ ,  $\text{R}^{14}$ ,  $\text{R}^{15}$  and  $\text{R}^{16}$  is independently selected from hydrogen,  $\text{C}_1\text{-C}_6$  alkyl and  $\text{CH}_2\text{OH}$ ; and  $\text{R}^{17}$  and  $\text{R}^{18}$  are  $\text{C}_1\text{-C}_6$  alkyl; and  $k$  and  $l$  are independently 1 to 3, comprising the steps of:

(a) reacting an amine represented by the formula  $\text{H}_2\text{N}-(\text{CR}^{13}\text{R}^{14})_k\text{CR}^4=\text{CHR}^5$  wherein  $\text{R}^{13}$ ,  $\text{R}^{14}$  and  $k$  are as defined for formula 3a, with a compound represented by the formula  $\text{R}^{17}\text{O}(\text{R}^{16}\text{R}^{15}\text{C})_l\text{C}(\text{O})\text{X}$  where  $\text{X}$  is a halide, or a reactive equivalent thereof to form a compound represented by the formula 6



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and (b) reacting the compound represented by the formula 6 with a compound of formula  $(\text{R}^{18}\text{OC}(\text{O}))_2\text{O}$  or a reactive equivalent thereof optionally in the presence of a basic catalyst to form the compound represented by the formula 3a.

31. (Withdrawn) The method of claim 30, wherein the basic catalyst is dimethylaminopyridine (DMAP).

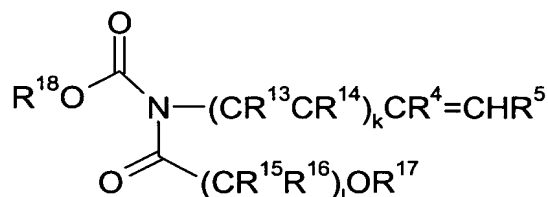
32. (Withdrawn) The method of claim 30, wherein  $\text{R}^4$  and  $\text{R}^5$  are both hydrogen.

33. (Withdrawn) The method of claim 30, wherein  $\text{R}^{13}$ ,  $\text{R}^{14}$ ,  $\text{R}^{15}$  and  $\text{R}^{16}$  are all hydrogen.

34. (Withdrawn) The method of claim 30, wherein  $k$  and  $l$  are both 1.

35. (Withdrawn) The method of claim 30, wherein  $\text{R}^{17}$  is methyl and  $\text{R}^{18}$  is t-butyl.

36. (Withdrawn) A compound represented by the formula 3a



3a

wherein  $\text{R}^4$  and  $\text{R}^5$  are independently selected from hydrogen and  $\text{C}_1\text{-C}_6$  alkyl; each  $\text{R}^{13}$ ,  $\text{R}^{14}$ ,  $\text{R}^{15}$  and  $\text{R}^{16}$  is independently selected from hydrogen,  $\text{C}_1\text{-C}_6$  alkyl and  $\text{CH}_2\text{OH}$ ; and  $\text{R}^{17}$  and  $\text{R}^{18}$  are independently  $\text{C}_1\text{-C}_6$  alkyl; and  $k$  and  $l$  are independently 1 to 3.

37. (Withdrawn) The compound according to claim 36, wherein  $\text{R}^4$  and  $\text{R}^5$  are both hydrogen.

38. (Withdrawn) The compound according to claim 36, wherein  $R^{13}$ ,  $R^{14}$ ,  $R^{15}$  and  $R^{16}$  are all hydrogen.

39. (Withdrawn) The compound according to claim 36, wherein k and l are both 1.

40. (Withdrawn) The compound according to claim 36, wherein  $R^{17}$  is methyl and  $R^{18}$  is t-butyl.